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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,426	02/20/2004	Samuel Mark Haugland	PAT029US	6364
32656	7590	07/21/2005	EXAMINER	
W-H ENERGY SERVICES, INC. 10370 RICHMOND AVENUE SUITE 990 HOUSTON, TX 77042			MCELHENY JR, DONALD E	
			ART UNIT	PAPER NUMBER
			2857	

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/783,426

Applicant(s)

HAUGLAND, SAMUEL MARK

Examiner

Donald E. McElheny, Jr.

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/20/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/18/04;02/20/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gill et al. (5,936,913) in view of the article by Cheng et al. titled (Determination of Shear Wave Velocities in "Slow" Formations".

Gill et al. teach the gist of the invention as far as the structural use of components in the context and purpose of determining acoustic wave components in a borehole. The acoustic transmitter may be operated in a unipole mode or other pole modes, or simultaneously all multipole modes. There is the teaching of use of these modes to generate the various types of borehole waves, including tube waves (i.e. "borehole guided wave") and various shear waves, and their separation. What is lacking is a specific discussion of how these resultant wave components are separated or derived. Gill et al. teach the use of various types of filtering techniques that may be included in the acoustic signal processing, including band pass filters.

Cheng et al. teach the same general borehole wave studies as Gill et al. but lack specifics of the structural system used. But Cheng et al. teach more specifically that the shear wave velocity can be measured and determined from first determining a borehole guided wave; for example, "first obtain the velocity of the Stoneley wave, and then invert for the shear wave velocity using the dispersion characteristics of the Stoneley wave." A Stoneley wave was well known to be a type of borehole guided wave by definition.

Thus the required claim (e) condition of "processing the borehole guided wave velocity to determine the shear wave velocity of the subterranean formation" was well known in the prior art.

Gill et al. teach at column 5 in its discussion of the prior art the use of a semblance algorithm for deriving shear velocity components, thus such techniques were well known in the art, though Gill et al. admit deficiencies in use of such technique and their preference to avoid them and improve upon such old techniques. Nevertheless the teaching is there and claims such as claim 8 are considered met by the teachings and state of the prior art before the filing date of the instant application.

Gill et al. teach the use of fitting real data to model (e.g. "theoretical) data to improve velocity component determination, which modeling techniques involve the various acoustical components relating to shear and guided wave velocity relationships. Thus claims drawn to such, as claim 9+, are met by the teachings of the prior art or state of the prior art that supports such implementation as the various measurements and processing were what would be used to derive such relationships.

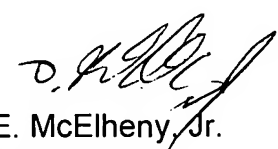
Since both references are drawn to the same concepts and technology studies, it would have been obvious to one of ordinary skill in the art to incorporate into the Gill et al. system the specific data processing teaching of Cheng et al. to derive the shear wave velocity component from the borehole acoustic received signals. The variations in frequency options as found in dependent claims were standard well known variations to arbitrarily select usage of in such acoustic borehole studies, as the references applied (and additionally cited) teach examples of.

3. The additional prior art is cited of interest as similar in teachings as the above Gill et al. patent.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald McElheny, Jr. whose telephone number is 571-272-2218. The examiner can normally be reached on Monday-Thursday from 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoff Marc, can be reached on weekdays at telephone number 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Donald E. McElheny, Jr.  
Primary Examiner  
Art Unit 2857